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| EXAMINER | |
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| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/756,713 | SCHMITZ ET AL. | |
| | Examiner | Art Unit | |
| | William L. Boddie | 2629 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-20,22-51,53-89 and 91-107 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20, 22-51, 53-89 and 91-107 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. In an amendment dated, November 24th, 2006, the Applicant amended claims 1, 6-7, 16, 23, 30, 35-36, 47, 54, 85, 92, 99, and 106-107. Claims 21, 52 and 90 have been cancelled. Currently claims 1-20, 22-51, 53-89 and 91-107 are pending.

### *Response to Arguments*

2. Applicant's arguments filed November 24th, 2006 have been fully considered but they are not persuasive.

3. On page 20 of the Remarks, the Applicant argues that Dowling does not disclose an integrated circuit comprising the devices listed in claim 1. The Applicant specifically points to Dowling's disclosure of external memory as evidence that Dowling does not satisfy all the requirements of claim 1, which include memory included within the integrated circuit.

While Dowling does offer the possibility of external memory to the device this is not a requirement. Dowling in fact goes on to state in the very next sentence following discussion of external memory, "A processor may also, or instead [of external memory], include an application specific integrate circuit." Additionally note that all other discussion of memory in the device, e.g. paragraph 56, neither require nor suggest that the memory is external.

The Applicant is further pointed to the last sentence of paragraph 53 of Dowling, which states in part, "the processor may further include computer executable code that controls operation of the programmable device." Here Dowling states that the processor can include computer executable code, this inherently requires memory

storage of some sort. Dowling goes on to state in the middle of paragraph 54, that "the processor 2 and controller 3 may be incorporated into one device, e.g., sharing a single semiconductor package." Thus the inherent memory included in the processor is included within the single semiconductor package. Therefore this disclosure at least satisfies the requirement that a memory be included within the integrated circuit.

It seems very clear to the Examiner that Dowling was familiar with and capable of incorporating all of the components of the Applicant's claim 1 into a single package. Dowling discusses several times the process of combining the processor and control circuitry of the device into a single integrated circuit. As such Dowling's disclosure sufficiently anticipates the currently worded claim language of the Applicant's claim 1, including requiring memory be incorporated into the integrated circuit.

4. Similar arguments are made to the rejections of claims 30, 61 and 99. As shown above these rejections are believed to be correct and are renewed.

5. On pages 26-27, the Applicants argue that the rejection of claim 99 is improper on the grounds that neither of the pieces of art, Dowling or Mueller, disclose all the components integrated in single integrated circuit. The Applicant's additionally argue that there is no motivation to combine the two pieces of art.

In response, the Examiner points to the above discussion regarding the integration of the components into a single integrated circuit. As to the claim that there is no motivation to combine, as stated in the previous office action, Dowling discloses, that additional LEDs may be included to increase the intensity of illumination (para. 89). Mueller further discloses, having additional LEDs in each module. When presented with

these facts, it seems clear to the Examiner that one of ordinary skill in the art would have been motivated to include more than one LED per LED module of Dowling's device.

6. On page 30, the Applicants argue that Nishimura is non-analogous art, as it relates to a camera in a mobile communication system, while the Applicant's claim to be concerned with "generally to a visual communication system."

In response, the Applicant is pointed to their own specification, which details including the LED modules on cameras (page 14, 2nd paragraph) as well as figure 1 which shows the device incorporated into a phone. Additionally note the disclosure of a specific "flash" mode in the current application's specification.

Finally, both inventions are drawn to programming and driving the illumination of LEDs and the circuitry that is required to accomplish such a device. As such there is seen as more than sufficient evidence that Nishimura is analogous art with respect to the Applicants' invention.

7. In the remaining pages of the remarks, 31-37, the Applicants' continually argue for each rejection that no piece of art sufficiently discloses an integrated circuit comprising all of the components of the independent claims. As shown above, Dowling sufficiently discloses such a device. As such each of these rejections are maintained.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3, 8, 11-15, 17-20, 22-23, 26-32, 37, 40-45, 49-51, 53-54, 57-61, 65, 67-70, 75, 78-84, 86-89, 91-92 and 95-98 are rejected under 35 U.S.C. 102(e) as being anticipated by Dowling et al. (US 2002/0070688).

**With respect to claim 1,** Dowling discloses, a system to perform a light show (fig. 1), wherein LED modules (4 in fig. 1) are displaying related light beams having defined properties (parameters in fig. 2a for example), wherein said properties have been defined prior to performing said light show (parameters are stored in a program clear from fig. 2a) is comprising:

an integrated circuit comprising:

an interface to input information (1 in fig. 1);

a memory to store the information about the properties of said beams to be displayed (6 in fig. 1);

a sequencer to control one or more LED drivers (2 in fig. 1);

a LED driver unit (3 in fig. 1) comprising a driver for each color of said LED modules (para. 54) able to control the intensity of light where one driver for each LED is used (para. 78 for example); and

an electrical connection to said LED modules (note the wired connection between the controller and LED); and

an arrangement of one or more LED modules (three modules in fig. 1).

**With respect to claim 2,** Dowling discloses, the system of claim 1 (see above) wherein the parameters defining said properties of said light beams are downloaded via said interface to input information (para. 65 for example) and stored in said memory (para. 56).

**With respect to claim 3,** Dowling discloses, the system of claim 1 (see above), wherein said arrangement of one or more LED modules (4 in fig. 1) comprises three LED modules (clear from fig. 1).

**With respect to claim 8,** Dowling discloses, the system of claim 1 (see above), wherein said LED drivers are PWM LED drivers (para. 57).

**With respect to claim 11,** Dowling discloses, the system of claim 1 (see above), wherein said LED drivers are current controlled drivers (para. 52).

**With respect to claim 12,** Dowling discloses, the system of claim 1 (see above), wherein said properties of said light beams comprise different defined brightness for each LED (paras. 59 and 78 for example).

**With respect to claim 13,** Dowling discloses, the system of claim 1 (see above), wherein said properties of said light beams comprise different defined flashing intervals for each LED (see parameters in fig. 2b for example).

**With respect to claim 14,** Dowling discloses, the system of claim 1 (see above), wherein said properties of said light beams comprise different ON/OFF intervals, different colors, different brightness, and a flashing interval for each LED (note the numerous programs and parameters for each in figs. 2a-2b).

**With respect to claim 15,** Dowling discloses, the system of claim 1 (see above), wherein said LED driver unit is activating the lights in defined time intervals (para. 61).

**With respect to claim 17,** Dowling discloses, the system of claim 1 (see above), wherein said LED driver unit is controlling the transition between different colors of a LED module using a fading interval (para. 59; also note the slow wash parameters in fig. 2a).

**With respect to claim 18,** Dowling discloses, the system of claim 17 (see above), wherein different options are possible to define said fading interval (see fig. 2a where the change/wash time can be made larger or smaller).

**With respect to claim 19,** Dowling discloses, the system of claim 18 (see above), wherein said options to define a fading interval include the options "No Fade" (strobe program), "Slow Fade" (slow wash; parameter b), "Linear Fade" (parameter c/d), "Fast Fade" (increase wash; parameter a).

**With respect to claim 20,** Dowling discloses, the system of claim 19 (see above), where only a few of said options are being used (from the diagram in fig. 2a/b it seems clear that the user can only use one "option" at a time).

**With respect to claim 22,** Dowling discloses, the system of claim 1, wherein said circuit is realized in an ASIC (para. 53-54).

**With respect to claim 23,** Dowling discloses, the system of claim 1 (see above) wherein said LEDs are connected to said circuit via output pins (clear from fig. 1 and para. 54).

**With respect to claim 26,** Dowling discloses, the system of claim 1 (see above), wherein said properties of said light beams comprise a light pattern over a multitude of LED modules (para. 78; for example).

**With respect to claim 27,** Dowling discloses, the system of claim 1 (see above), wherein said properties of said light beams comprise a light intensity setting (paras. 59 and 78 for example).

**With respect to claim 28,** Dowling discloses, the system of claim 27 (see above), wherein said light intensity setting is defined for each LED individually (para. 54).

**With respect to claim 29,** Dowling discloses, the system of claim 1 (see above), wherein said properties of said light beams comprise a defined sequencing of said LEDS (para. 69; also note the blink parameters in fig. 2b).

**With respect to claim 30,** Dowling discloses, a system for visual, electronic communication, highlighting information/events (fig. 1), wherein LED modules are displaying related light signals having defined properties representing said different information/events (para. 69, for example), is comprising:

an integrated circuit comprising:

an interface to input information (1 in fig. 1);

a memory to store the information about the properties of said beams to be displayed (6 in fig. 1);

a sequencer to control one or more LED drivers (2 in fig. 1);

a LED driver unit (3 in fig. 1) comprising a driver for each color of said LED modules (para. 54) able to control the intensity of light where one driver for each LED is used (para. 78 for example); and

an electrical connection to said LED modules (note the wired connection between the controller and LED); and

an arrangement of one or more LED modules (three modules in fig. 1).

**With respect to claims 31-32, 37, 40-45, 48-51, 53-54 and 57-60,** as these claims are identical to those previously rejected, specifically claims 2-3, 8, 11-15, 17-23 and 26-29, claims 31-32, 37, 40-45, 48-54 and 57-60 are rejected on the same merits shown above in their identical claims.

**With respect to claim 61,** Dowling discloses, a phone system (para. 93) highlighting information/events wherein LED modules are displaying related signals representing said different information/events (para. 69 for example), is comprising:

a circuit comprising:

an integrated interface to input information (1 in fig. 1);

a memory to store the information about the properties of said beams to be displayed (6 in fig. 1);

a sequencer to control one or more LED drivers (2 in fig. 1);

a LED driver unit (3 in fig. 1) comprising a driver for each color of said LED modules (para. 54) able to control the intensity of light where one driver for each LED is used (para. 78 for example); and

an electrical connection to said LED modules (note the wired connection between the controller and LED); and

an arrangement of one or more LED modules (three modules in fig. 1).

**With respect to claim 65,** Dowling discloses, the system of claim 61 (see above), wherein the phone system is a mobile phone (para. 93).

**With respect to claim 67,** Dowling discloses, the system of claim 61 (see above), wherein said phone comprises composer software to define the parameters of said sequencer (program 1-4 in figs. 2a/b) and to download said parameters (para. 65 for example) to said memory (para. 56).

**With respect to claim 68,** Dowling discloses, the system of claim 61 (see above), wherein the parameters of said sequencer are downloaded from a PC (para. 118).

**With respect to claim 69,** Dowling discloses, the system of claim 61 (see above), wherein the parameters of said sequencer are downloaded from the Internet (network in fig. 27 and para. 118; also note para. 92).

**With respect to claims 70, 75, 78-84, 86-89, 91-92 and 95-98,** as these claims are identical to those previously rejected, specifically claims 2-3, 8, 11-15, 17-23 and 26-29, claims 70, 75, 78-84, 86-92 and 95-98 are rejected on the same merits shown above in their identical claims.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 4-7, 33-36, 71-74, 99-100, and 102-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Mueller et al. (US 6,016,038).

**With respect to claim 4,** Dowling discloses, the system of claim 1 (see above).

Dowling does not expressly disclose, wherein said arrangement of one or more LED modules comprises more than one LED each.

Mueller discloses, a LED driving system wherein an arrangement of LED modules (120, 140, 160 in fig. 1) comprises more than one LED each (col. 3, lines 30-34).

Mueller and Dowling are analogous art because they are from the same field of endeavor namely, LED drivers and control circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include numerous LEDs in each module.

The motivation for doing so would have been to increase the intensity of the LED display (Dowling; para. 89).

Therefore it would have been obvious to combine Mueller and Dowling for the benefit of increased intensity to obtain the invention as specified in claim 4.

**With respect to claim 5,** Mueller and Dowling disclose, the system of claim 4 (see above).

Mueller further discloses, wherein said arrangement of one or more LED modules comprises three LEDs each (col. 3, lines 30-34; discloses 27 red LEDs, and 25 green and blue LEDs; thus each module comprises three LEDs in addition to extra LEDs).

**With respect to claims 6 and 7,** Mueller and Dowling disclose, the system of claim 5 (see above).

Dowling further discloses, wherein said three LEDs each emit red, green and blue light (para. 57).

**With respect to claims 33-36 and 71-74,** as these claims are identical to those previously rejected, specifically claims 4-7, claims 33-36 and 71-74 are rejected on the same merits shown above in their identical claims.

**With respect to claim 99,** Dowling discloses, a method to establish visual, electronic communication (fig. 2a/b), highlighting information/events, wherein LED modules (4 in fig. 1) are displaying related light signals having defined properties (brightness/strobe time/change time etc.) representing said different information/events (para. 69 for example) comprising:

providing an integrated circuit comprising an interface (1 in fig. 1), a memory (6 in fig. 1), a sequencer (2 in fig. 1), a LED driver unit connected to LEDs (3 in fig. 1), and one or more LED modules (4 in fig. 1);

determine the information to be visually highlighted (para. 92);

define the kind of highlighting of the information selected above (selection of a program; para. 65);

compose the sequencer steps according to the definitions of the two steps above (selection of the mode/program operating in as well as the parameters listed in figs. 2a/b);

if said composing software is built into the phone store the sequences in said memory (para. 52);

ready for operation (figs. 2a/b).

Dowling does not expressly disclose, wherein said arrangement of one or more LED modules comprises more than one LED each.

Mueller discloses, a LED driving system wherein an arrangement of LED modules (120, 140, 160 in fig. 1) comprises more than one LED each (col. 3, lines 30-34).

Mueller and Dowling are analogous art because they are from the same field of endeavor namely, LED drivers and control circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include numerous LEDs in each module.

The motivation for doing so would have been to increase the intensity of the LED display (Dowling; para. 89).

Therefore it would have been obvious to combine Mueller and Dowling for the benefit of increased intensity to obtain the invention as specified in claim 99.

**With respect to claims 100 and 102-106,** Dowling and Mueller disclose, the method of claim 99 (see above).

Dowling further discloses, wherein said related light signals representing said different information/events are displayed using lights, different colors (para. 69), different brightness (para. 57), a flashing interval (speed up / slow down in fig. 2b), and an assignment to specific positions (para. 118; note the numerous examples throughout Dowling, as well as the programs in fig. 2a/b).

12. Claims 9-10, 38-39 and 76-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Tokimoto et al. (US 6,690,341).

**With respect to claims 9 and 10,** Dowling discloses, the system of claim 8 (see above), wherein said PWM drivers are capable of varying the intensity of the LEDs to generate a wide gamut of colors (para. 57).

Dowling does not expressly disclose, that 4-bit drivers are used therefore enabling 4096 colors to be displayed.

Tokimoto discloses, a LED display system (fig. 1) wherein a 4-bit driver (15 in fig. 5) is used therefore enabling 4096 colors (col. 3, lines 59-62).

Dowling and Tokimoto are analogous art because they are both from the same field of endeavor, namely control circuitry for LED display systems comprising RGB LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to drive the LEDs of Dowling with 4-bit drivers enabling 4096 colors as taught by Tokimoto.

The motivation for doing so would have been to enable a wide gamut of colors thus allowing more accurate image reproduction.

Therefore it would have been obvious to combine Tokimoto with Dowling for the benefit of accurate color reproduction to obtain the invention as specified in claims 9 and 10.

**With respect to claims 38-39 and 76-77,** as these claims are identical to those previously rejected, specifically claims 9-10, claims 38-39 and 76-77 are rejected on the same merits shown above in their identical claims.

13. Claims 16, 47 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Nishimura et al. (US 2003/013484).

**With respect to claim 16,** Dowling discloses, the system of claim 1 (see above), wherein said LED driver unit is controlling the transition between different colors of a LED module (figs. 2a/b).

Dowling does not expressly disclose the use of a flash mode where the maximum brightness is obtained followed by a set brightness.

Nishimura discloses, a LED driver (127 in fig. 15) that uses a "flash" mode at turn on point of time wherein a LED (137 in fig. 15) is turned on initially to its maximum brightness followed quickly by the set brightness (paras. 169, 174; also note the drive voltage for the LED in fig. 20).

Nishimura and Dowling are analogous art because they are both from the same field of endeavor namely, driver circuitry and methods of driving LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to operate the LEDs of Dowling, in a flash mode as taught by Nishimura.

The motivation for doing so would have been to illuminate the image field prior to taking a picture with a camera.

Therefore it would have been obvious to combine Nishimura and Dowling for the benefit of additional applications of the device to obtain the invention as specified in claim 16.

**With respect to claims 47 and 85,** as these claims are identical to those previously rejected, specifically claim 16, claims 47 and 85 are rejected on the same merits shown above in their identical claims.

14. Claims 24-25, 55-56 and 93-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Sasaki et al. (US 6,404,139).

**With respect to claims 24 and 25,** Dowling discloses, the system of claim 23 (see above).

Dowling does not expressly disclose, wherein nine output pins are arranged and controlled by a multiplexer arrangement.

Sasaki discloses, a multiplexer arrangement (fig. 5/6) that is similar to the Applicant's multiplexer arrangement, upon use of the 20 LED device (fig. 5/6), it is clear that nine output pins (5 columns, 4 rows) would be used.

Sasaki and Dowling are analogous art because they are both from the same field of endeavor namely, driver circuitry and methods of driving LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to address the LED modules of Dowling as taught by Sasaki.

The motivation for doing so would have been the decreased circuitry necessary to individually address the devices.

Therefore it would have been obvious to combine Sasaki with Dowling for the benefit of simplified circuitry to obtain the invention as specified in claims 24 and 25.

**With respect to claims 55-56 and 93-94,** as these claims are identical to those previously rejected, specifically claims 24-25, claims 55-56 and 93-94 are rejected on the same merits shown above in their identical claims.

15. Claims 62-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Lys et al. (US 6,528,954).

**With respect to claims 62-63,** Dowling discloses, the system of claim 61 (see above).

Dowling does not expressly disclose where the LED modules are located on the phone.

Lys discloses, a phone system with LED modules (1082 in fig. 84) located on the front of the phone in a prominent location (clear from fig. 84).

Lys and Dowling are analogous art because they are both from the same field of endeavor namely, driver circuitry and methods of driving LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to place the LED modules of Dowling on the phone as taught by Lys.

The motivation for doing so would have been to allow the LEDs to be quickly and easily viewable by the user.

Therefore it would have been obvious to combine Lys with Dowling for the ease of visibility to obtain the invention as specified in claims 62-63.

16. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Kitano et al. (US 2003/0216151).

**With respect to claim 64,** Dowling discloses, the system of claim 61 (see above).

Dowling does not expressly disclose, that the LED modules are located on the sides of the phone.

Kitano discloses, a phone system (fig. 1) having LED modules (11 in fig. 1) that are located on the sides of the phone system (note the abstract; para. 12, and claim 2).

Kitano and Dowling are analogous art because they are both from the same field of endeavor namely, driver circuitry and methods of driving LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to place the LED modules of Dowling on the phone as taught by Kitano.

The motivation for doing so would have been to allow the LEDs to be quickly and easily viewable by the user.

Therefore it would have been obvious to combine Kitano with Dowling for the ease of visibility to obtain the invention as specified in claim 64.

17. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Kota et al. (US 7,003,318).

**With respect to claim 66,** Dowling discloses, the system of claim 65 (see above).

Dowling does not expressly disclose, that the LED modules are located on the back of the phone.

Kota discloses, a phone system (fig. 1) having LED modules (105 in fig. 1b) that are located on the back of the mobile phone (seems clear from figs. 1a-c).

Kota and Dowling are analogous art because they are both from the same field of endeavor namely, driver circuitry and methods of driving LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to place the LED modules of Dowling on the phone as taught by Kota.

The motivation for doing so would have been to allow the LEDs to be quickly and easily viewable by the user.

Therefore it would have been obvious to combine Kota with Dowling for the ease of visibility to obtain the invention as specified in claim 66.

18. Claim 101 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Mueller et al. (US 6,016,038) and further in view of Tokimoto et al. (US 6,690,341).

**With respect to claim 101,** Dowling and Mueller disclose, the method of claim 100 (see above), wherein said PWM drivers are capable of varying the intensity of the LEDs to generate a wide gamut of colors (para. 57).

Neither Mueller nor Dowling expressly disclose, that 4-bit drivers are used therefore enabling 4096 colors to be displayed.

Tokimoto discloses, a LED display system (fig. 1) wherein a 4-bit driver (15 in fig. 5) is used therefore enabling 4096 colors (col. 3, lines 59-62).

Dowling, Mueller and Tokimoto are analogous art because they are both from the same field of endeavor, namely control circuitry for LED display systems comprising RGB LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to drive the LEDs of Dowling and Mueller with 4-bit drivers enabling 4096 colors as taught by Tokimoto.

The motivation for doing so would have been to enable a wide gamut of colors thus allowing more accurate image reproduction.

Therefore it would have been obvious to combine Tokimoto with Dowling and Mueller for the benefit of accurate color reproduction to obtain the invention as specified in claim 101.

19. Claim 107 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling et al. (US 2002/0070688) in view of Mueller et al. (US 6,016,038) and further in view of Nishimura et al. (US 2003/013484).

**With respect to claim 107,** Dowling and Mueller disclose, the system of claim 106 (see above), wherein said LED driver unit is controlling the transition between different colors of a LED module (figs. 2a/b).

Neither Mueller nor Dowling expressly disclose the use of a flash mode where the maximum brightness is obtained followed by a set brightness.

Nishimura discloses, a LED driver (127 in fig. 15) that uses a "flash" mode at turn on point of time wherein a LED (137 in fig. 15) is turned on initially to its maximum brightness followed quickly by the set brightness (paras. 169, 174; also note the drive voltage for the LED in fig. 20).

Nishimura, Mueller and Dowling are analogous art because they are both from the same field of endeavor namely, driver circuitry and methods of driving LEDs.

At the time of the invention it would have been obvious to one of ordinary skill in the art to operate the LEDs of Dowling and Mueller, in a flash mode as taught by Nishimura.

The motivation for doing so would have been to illuminate the image field prior to taking a picture with a camera.

Therefore it would have been obvious to combine Nishimura with Mueller and Dowling for the benefit of additional applications of the device to obtain the invention as specified in claim 107.

***Conclusion***

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wlb
1/11/07

AMR A. AWAD
SUPERVISORY PATENT EXAMINER